



## In this issue:

From the editor	1	February MAST DOMs	5
Treasurer's report	1	How about an 8-bit Fractals SIG?	5
News from the Pres. (MAST)	2	Of Course I Own an Atari	6
VP Column (SPACE)	3	Batch Files by Jim Johnson	6
MAST: Notes on the January meeting	3	Mini MIDI lessons (part 3) by M. Miller	6
February SPACE DOM	4	ST News	8

## From the editor

There are several items missing from this month's newsletter. I was informed that several files had been posted to the SPACE board, but was unable to find them. Sorry, but we can only print files to which we have access.

This month I want to thank Dan Comfort for his detailed notes on the January MAST meeting. I look forward to more from Dan in the future.

Don't forget that February is MAST's birthday party! I hope to see you there.

-- David Paschall-Zimbel

## Treasurer's report by Allan Frink January 1990

I've recently heard that people are saying that the one club 'loans' money to the other club. I want to dispel this rumor -- at NO TIME since I took office in November 1988 has either club had a negative balance at the bank or 'loaned' money to the other club.

Current bank balances (as of 31 Jan 90)

SPACE	\$377.60	up by \$167.43 since 31 Dec 90
MAST	\$602.75	up by \$317.00 since 31 Dec 90

Membership counts are:

SPACE:	40
MAST:	82
Both:	15

SPACE welcomes new members:

Raymond Wafer	Mike Schmidt
---------------	--------------

MAST welcomes new members:

Jim Tolbert	Michael Denison	Sigard Hanson
-------------	-----------------	---------------

SPACE welcomes renewed members:

James Buchmann	Frank Griffin	Patrick Krenn
John Novotny	Larry Serflaten	Mark Vallevand

MAST welcomes renewed members:

Frances Anderson	Dan Comfort	Tom Cook
James Davenport	Bob Korn	Bill LeDuc
Marshall McGraw	Steve Mihalchick	James Novak
Paul Sclessinger	William Thorson	William Wittich



## News from the Pres By Jim Schulz

It's time!!!! It's time to wish MAST a happy fourth birthday and thank all the members for their support through the years. With you, MAST would not exist today. Thank you all again and happy birthday!!! More on the birthday party this month is coming up..... First, a serious issues and then the birthday party and more.....

On a serious note. Last month, elsewhere in the newsletter, it was reported that MAST was \$300.00 in the hole. This is a blatant lie!!! For the last two months, Allan has published the financial situation of both groups. While this was said in one section, we were to the black by over \$285.00 on the front page of the newsletter. MAST is not in any financial problems and other than the first year when we were paying off the ST and getting on our feet, we have not been in debt since. If MAST was \$300.00 in the hole, we would be selling off equipment and closing the doors. This is not the case. MAST is alive and kicking. If you have any questions about this situation, please feel free to talk to either Allan or myself.

Birthday party time!!!! We have a full meeting schedule for our birthday. First off, we will pop, cake, and member supplied snacks (no popcorn please). Members bring along your favorite munchies to share with others.

Second, we will have our annual birthday raffle. Prizes this year include a copy of PageStream donated by Softlogik, a Tweety Board and a VT100 emulator donated by two members of MAST, a Video Key from Practical Solutions, six programs from Wizard's Works including SDI, Guild of Thieves and Beyond Zork, Chaos Strikes Back, MidiMaze, a PC Tool Kit and more..... Yes, probably the best raffle of prizes to date. Now, to get a raffle tickets, you buy a MAST DOM from the library with one ticket per disk purchased and all members also get one ticket as well for just validating their mailing address. Simple.

Third, **DOM prices** will be dropped to their lowest prices yet of \$3.00 per disk for the evening. So start going through those DOC disks. We will also have updated DOC disks at the meeting. The \$3.00 low price is in effect the day of next month's SPACE meeting or one week before the meeting.....

Fourth, blank disks are also dropping for one night. Our price for double-sided Sony disks is going to \$0.70 each for just one night. We have just 250 at this low price so come early.

Finally, if that wasn't enough we have two demo presentations as well. First, Cory Johnson from Wizard's Works will show us the Turbo 16 upgrade from FAST Technologies on his Mega 4. If you thought the ST screamed with Turbo ST and TOS 1.4, you haven't seen anything yet.

We'll have the premier memory upgrade expert in town. Scott Hutchinson from LR Data will

come and talk to us about memory upgrades and answer your questions about upgrades and probably the ST hardware in general. Scott has been doing upgrades for years and he is the only ST memory upgrader in town who guarantees his work now and later as well. He is now doing 2 meg and 4 meg upgrades in addition to the one meg upgrades from the past.

Yes, that's what I call a full meeting. And don't forget this month's dose of news and rumors as well as well as your questions. But it is only right for MAST's fourth birthday celebration. I hope to see you all there.

Coming in the months ahead..... *Next month is swap meet month.* Bring your old used software and hardware to swap and sell at the March meeting. We are also looking for members to demo software and hardware at the meeting. Demos which have been requested by members include PageStream, any of the new mice for the ST, PC Ditto II (when it works correctly), and a howto session on how to assemble your hard drive system. The new UIS III will either be demoed this month, time permitting or next month. I can also prepare some demos, but one man just can't do everything. If you have something that you would like to demo, just give me a call before the last week of the month so I can place it in the newsletter or during the week of the meeting so we can plan for your demo. The earlier, the better. I would like to thank Bill Wittich's son for demoing Chaos Strikes Back at the last meeting.

Now on to our magazine projects..... First, **AIM**. We finally got the information on the AIM magazine and a sample issue two days after the meeting. We will have the two sample issues at the meeting as well as possibly an updated AIM article disk as well. The price is now \$15.00 a year. If we get six to ten members interested in a subscription to AIM, we will go forward. Otherwise, we will publish their address and let the members subscribe themselves for \$18.00. Second, **PSAN**. This is the Puget Sound Atari News magazine. We have been exchanging newsletters with them for years. Lately, they have been getting a lot of press. Their magazine is of the quality of Current Notes and just as timely. A letter has been sent to them asking how much it would cost for MAST members to subscribe to the PSAN newsletter. I had two issues with me at the meeting and members kept on wanting to know how??? I didn't even leave with the issues which I brought. We will have a number of issues on hand as well as information on how to subscribe as well at the meeting. PSAN also includes the Z\*Net supplement as well. Speaking of Z\*Net, how is that for a transition... I did get a call from John Nagy and Ron Kovacs the day after the newsletter went to press. They said that the bills would be paid in full by February 1st and Z\*Net would now come to our Post Office box. Well, no money arrived as well as no Z\*Net. I have waited as long as possible for it to arrive. A number of mail messages are on the way to them as well as a letter. I think the door is closing fast on Z\*Net after their lack of cooperation.

Now for some random notes..... First, I would like to thank Dan Comfort for volunteering to become MAST's new secretary. Dave just read me parts of his first month's minutes and all I can do is praise them. It sounds like he has done an excellent job and I am looking forward to reading them in their entirety. Thanks again, Dan for volunteering. Second, we do need volunteers for demos. This is one area that is lacking at the meeting. I have tried to prepare stuff, but I just don't always have the time between news and rumors and DOMs. We also need some members who would volunteer to help new members get started. This is another area that needs help as well. One member asked at the meeting for help. And myself as well as three others answered his questions after the meeting. New members are important to MAST and we can't let them down. Sometimes, a phone call is all that is necessary and other times a visit for hands on help. If you are willing to help answer questions for new as well as old members, let me know at the meeting. I answer quite a few of these calls myself, but at times I don't have the time necessary or I can't answer all of their questions. Third, this is another appeal to renew your memberships if they are up this month. We have had quite a few renewals over the last two months, but we don't want to lose you from MAST or the ST community. Please check your label on the back of the newsletter and renew if your membership is up. Fourth, my UIS III update has finally arrived. Now, way, way, back, about 12 members bought copies through myself and MAST. But it seems that ST Informer and Applications and Design Software want to be the only updaters of UIS III. They were quite vocal about this in their comments in the last issue of ST Informer. So based on the current situation, I am not going to updating members to UIS III right now. I have sent a letter explaining the original situation and asking for a clarification. The documentation which came with UIS III is also quite a thick book and copying this also could be prohibitive. If this involves you, the issue is not yet closed and I am working on a solution. I will tell you more at the next meeting. Finally, don't forget the MAST+ meeting on the Tuesday following the MAST birthday meeting. The UUCP software is finally done and ready for use. Come to the meeting for more information. Also don't forget the MAST BBS and all the good work done by sysop Tom Cook. Give the MAST BBS a call at 472-6582.

Well, that's it for February. The envelope is quite full this month. First off, UIS III is well worth the money. The new version was well worth the wait and packed full of new enhancements including file viewing and a wide file selector. I just got it and I still finding new useful features. Next, the year and a half wait is over..... Ultima V is finally out for the ST. And it is well worth for all of you Ultima followers. I guess it's time to adventuring again. Finally, if you like Dungeon Master, Chaos Strikes Back, Galdregons Domain and the like, check out the new game from Europe called Drakkhen. I just picked it up this afternoon and I already hooked. But watch out for the shark in the moat around the castle,



he loves to eat adventurers on their way into the castle. This new game is something special. And for utility fans, check out the new Michtron release called DASH or Duplicating and Security Handler. This is a general purpose disk copier program that will format in a number of formats including IBM compatible disks, a built in virus checker, and a bad sector fixer for saving those critical disks. This is my new program for duplicating DOMs starting this month. It provides all of the options that I have been looking for and more. And for those looking for more information...., a new ST book called Intermediate and Advanced Atari ST Subjects. If you liked the blue Atari ST Book and wanted more, this is for you. Topics include hard drives, IBM emulators, 5 1/4" drives on the ST, and more. The envelope closes it flap, but is looking for quite a bit of postage due this month. The Atari ST stuff is flowing again. I hope to see you all at the February Birthday party and at the MAST+ programmer's meeting the following Tuesday. If you don't make any other meetings this year, this is the one to make. MAST's birthday party is always something special!!!!

### Vice Presidential Report by Nathan Block

Hello there! This is my first column due to some problems with my earlier wordprocessing program, was unable to make a column. I am your new vice president, my name is Nathan Block and I am at your service.

Some things to discuss this month are WHERE DO I BUY SOFTWARE and HARDWARE for my ATARI 8-BIT? Well, a good place to START is at the user group SPACE which you belong to. Our DOM prices are now \$3, which is a mere steal for a disk packed full of excellent software. Also, there is one ATARI dealer here in Minnesota, THE COMPUTER STATION in South Minneapolis carries a LARGE selection of ATARI software. The COMPUTER STATION is located on the corner of Diamond Lake Road and Nicollet, the phone number is 822-0777. Also, mail order wise, the largest company I have seen is NO FRILLS SOFTWARE which has about 200 selections for the ATARI. The number is long distance but well worth it, a LOT of software to choose from, 308-234-6250.

If you are a programmer, we are starting up programming SIG of SPACE which we need people to join. We already have about 4 people signed up, but I would like to get as much of the user group in as possible. If you are interested, please come to the meetings.

There is an ATARI user in Switzerland that I have been writing to who has been having problems finding software for the ATARI 8-BIT. I was trying to round up people's old software and send him an ATARI care package. I have contributed 3 titles and am hoping that other users will do the same. This can be PUBLIC DOMAIN or COMMERCIAL software. If you would like to make this ATARI user's life easier, please send a piece of software that you are no

longer using to SPACE's PO Box, to my attention. I will make sure you are given credit for your piece and I will share with you the letter I get from him about it.

Still looking for a copy of ULTIMA 4? I saw one on the AGA shelf of all places at B DALTON SOFTWARE ETC in Southdale. The manager said he would drop the price to the first person who asked about it, I have no interest in ULTIMA 4, so if you want it, feel free to take advantage of it.

Well, that should wrap up for this month, we NEED TO SEE YOU AT THE MEETINGS! Come on over and see what ALL of us can do for each other!

— Nathan Block

### Notes on the MAST meeting, Friday, Jan. 19, 1990 by Dan Comfort

The meeting was called to order at 7:30 by the Vice President, David Paschall-Zimbel. He said that the treasurer, Allan Frink, was out of town on business.

He asked if there were any questions. There was one, asking if anyone had figured out the game Tower of Babel. No one apparently had.

Dave said the next meeting would be the birthday party. He asked for volunteers to bring munchies. The March meeting will be include a swap meet.

He discussed the AIM user group magazine. They had offered to send it to all MAST members for a set fee. Unfortunately, that fee would force a significant increase in MAST dues, so MAST will probably go with another offer, a discount to MAST members who subscribe. This offer is similar to the deal Current Notes gives MAST.

BIX has a full-page add in the newsletter, offering discounts to MAST members who join BIX. Dave said that MAST has a couple of BIX memberships to get news and files for MAST.

A MAST member complimented the MIDI article by Morris G. Miller that has been running in the newsletter, and asked for information on contacting the author. Dave said he plans to publish the author's address in the next installment.

Chuck said a new release of MINIX was coming over USENET from Germany. Chuck has received the first 15 of 45 parts. (MINIX is a UNIX-like operating system Andrew Tannenbaum wrote for the IBM PC to accompany his textbook on operating systems. It was ported to the ST about a year ago). Chuck said that there would be further discussion of the new release at the MAST+ meeting Tuesday night.

David Beckmeyer has released his MICRO-RTX operating system as shareware. MICRO-RTX will multitask TOS (but not GEM) programs.

Dave said that it might be a good idea to do a session on ST alternatives; other operating systems, and CLI (Command Line Interface) programs. (CLIs replace the GEM desktop with UNIX and MS-DOS like command lines).

He said that the sale on DOMS was still on (\$4, instead of \$6 per disk). All 4 89 ST NEWS disks are available for \$2 each. The latest Documentation disk set was also available for \$2.

He asked for suggestions for topics for March. Three were given:

1. Enhancements; software (like Turbo ST) and hardware (like the TURBO-16 board) to make the ST run faster and/or better.
2. Favorite utilities.
3. Memory expansion. Someone asked where to get memory expansions. Four local possibilities were mentioned:
  - A. Wizard's Work.
  - B. Computer Fitness in Little Canada.
  - C. the Good Guys.
  - D. David and/or Scott Hutchison in White Bear Lake.

Wizard's Work may demo the Turbo 16 board at a upcoming meeting.

ST Informer reported that PC DITTO II (the board that makes the ST into a PC clone) was finally shipping. There were reports from people who subscribe to USENET most of the initial shipment had problems with dead chips.

Dave said that Double-Click Software was coming out their own desktop to replace GEM's. A piece of that desktop is on a January Utility DOM.

A member reported seeing an add in a MIDI magazine showing a STACY (portable ST) driving a MIDI instrument. A USENET subscriber said he heard that the STACY was being reworked; it passed the FCC emission tests for business equipment, but not the ones for equipment designed for home use.

Someone asked about the status of the TT (68030 based ST that will run UNIX). It is scheduled to be shipped in Europe by the end of the 1st quarter of 1990. A shipping date for the US has not been set.

Dave mentioned the printer ribbon re-inking service available at MAST meetings.

He asked if anyone had a LYNX yet. Someone said they could be ordered at Sears. (The LYNX is a hand held game machine from Atari. It has a small color monitor. The price was said to be \$180, but there was speculation it would be lowered).

The makers of ZOOMRACKS have agreed to settle with Apple out of court on their charges that Apple's Hypercard violated patents they

had received for note-card based storage programs.

XEROX has sued Apple, claiming that the Macintosh interface was a copy of XEROX's Star interface. Dave noted that this puts Apple in a tough spot; they have to argue that it is fine for the Macintosh to copy the XEROX Star, but wrong for MicroSoft Windows and Presentation Manager to copy the MAC.

Someone asked about how long the Power Pack special, a 520STFM with bundled software for around \$400, would be available. It sounds like it is an on-going offer.

At this point the chair appealed for a screwdriver to adjust the color monitor for a ST-NEWS demo. A well-prepared member had one, so the demos proceeded.

Dave turned the meeting over to President Jim Schulz with one last appeal; "Write articles!!!"

Jim went through the DOMS, demoing where possible.

There were 4 ST NEWS disks for 1989.

2 DOC disks, current through December.

3 Magazine disks:  
ST-PLUG  
ZNet (formerly ST ZMAG)  
CPU Report (formerly ST Report).

Both ZNET and CPU Report switched to volumes instead of issue numbers as well as changing names.

There were two utility disks:

Utility 1:  
*Flipside* - allows a single sided drive to read 1/2 of a normally formatted double-sided floppy.  
A new *QuickST* demo (like the previous demo, a slowed-down version of the software; supposedly faster than the previous demo).  
A *screen blank utility* - displays moving stars when blanking the screen.  
*Superboot 6.0.0* - a newer version of the utility that allows the user to select options while booting.  
A faster *unpacker* for LZH format archive files.

Utility 2.  
*DC SHOWIT* - a much enhanced replacement for the desktop's SHOW function; to be placed in the auto folder.  
*ARC 6.0.2* - the latest and greatest.  
*ARCSHELL* - understands the new ARC.  
*Double-click Menu* - allows programs to be selected from its menu, even if they reside in other folders.

Applications - a Mono paint program, an IMG printer (requires GDOS), and a slide show program.

Games 1. A monochrome flight simulator and a Defenders game.

Games 2. Space invaders, and two demos from

England.

Jim went through some more News and Rumors.

ANALOG magazine is dead. The original rumor was that Larry Flynt was tired of publishing it. The new rumor is that the editor quit out of frustration with Atari's management. ST INFORMER may pick up the unfulfilled subscriptions. (Someone commented that another magazine died and had ST INFORMER fulfill subscriptions- he expects to receive ST INFORMER for several years).

Atari mainly displayed the LYNX and announced the Power Pack at the Consumer Electronics Show.

STACY is shipping as a business machine. If you use it at home, just hope you don't live near a ham radio operator; if it interferes with the ham's radio equipment, you can be required to stop using it. Wizard's Work received three of them; they sold immediately.

STACY and the STE (enhanced ST) are selling as fast as they can ship in Canada.

The STE cannot save the desktop in Low Rez.

There is a poolfix patch out for the STE (TOS 1.6 ROMS).

Atari's president left for a better offer from another company.

Atari is shipping DESKSET II, a desktop publishing package for the MEGA 4. It replaces Calumus in Atari's hardware and software DTP bundle. It is pricey (\$450), and works only with Atari's laser printer, but was said to be a nice package.

TOS 1.4 is now available in the 2 chip set, as well as the 6 chip set.

Commodore spent 4 months aggressively advertising the Amiga. The result was a marginal increase in sales, not justifying the expensive campaign.

A "new" shareware scheme turned out to have been around for a while. If A registers a copy of my package for \$40, I'll send him a copy marked A. A gives it away. For every person who registers a copy marked A for \$15, A gets \$5, and the author keeps \$10.

Negotiations with AIM continue. They are available on the phone, but samples never arrive.

The Puget Sound Atari group is publishing a magazine that is equivalent to or better than the AIM magazine.

Negotiations with ZNET continue. "If they pay up, you'll see it in the Newsletter".

Dave announced that there was a signup sheet at the DOM table for those bringing goodies to the birthday party.

Jim said the birthday party would have prizes raffled off. He expected them to include Pagestream, Chaos Strikes Back (Dungeon Master II) and MIDI MAZE.

Someone said that Computer Fitness World was having a %20 off sale on ST software.

Ralph Turner, who wrote a good introduction to the ST, has produced a book for intermediate and advanced users.

Universal Item Selector 3.0 is supposed to be shipping.

Someone asked about the availability of project scheduling software. Jim found an ad in ST-INFORMER for Critical Path, a \$59.95 package.

The Atari Portfolio (hand-held MSDOS computer) got a nice write-up in Portable Computing Magazine.

The TT was on the cover of the last START magazine.

A new version of TURBO ST (ST speedup software) is close to release.

Someone asked about using a multisync monitor with an ST; he was referred to Kent Shumacher, who has one attached.

Stacy was written up in MAC WORLD, presumably as an inexpensive portable MAC.

Beckmeyer's RTX (TOS multi-tasker) will be a \$35 shareware package.

A newer user asked for help learning the ST. He was invited to talk to the officers after the meeting.

Does the TWISTER format work on older machines? Yes, but unless you do a lot of floppy IO, you may not notice much speedup.

Someone asked about upgrading to PAGESTREAM 1.8. Apparently Bruce Larson uses it and likes the upgrade. Someone else has installed it, but had not used it extensively.

The meeting was adjourned about 9:30. A demo of CHAOS STRIKES BACK followed.

## SPACE DOM

*[ed. Joe Danko's article was uploaded to the SPACE board, but mysteriously disappeared. Meanwhile, Nathan Block wanted me to let you all know about the following SPACE DOM...]*

**SPACE PROUDLY PRESENTS**  
**A truly AMAZING PD game for the ATARI**  
**8-BIT**  
**Z Y B E X !**

A shootem up game with graphics and sound unlike any public domain we have seen. This

game is only available from our PD library and it can be yours for \$3 + \$1 for postage/handling!

Send your check to: SPACE, PO Box 12016, New Brighton, MN 55112, and ask for ZYBEX!

## MAST Disks of the Month By Jim Schulz

Well, it's DOM time again. This month, I will again start with a rundown of last month's disks and then what is in store for this month. The description this month will be very brief and I will only spotlight a couple of areas. More information will be available at the meeting.

So here we go into last month..... Last month's selection included five new disks, and two magazine disks.

- #1 - ST Report/CPU Report magazine issues for January
- #2 - ST ZMAG/Z\*Net magazine issues for January
- #3 - ST Plug & CPU Report magazine issues for January

- #443 - January DOM #1 (Utilities Disk #1)
- #444 - January DOM #2 (Utilities Disk #2)
- #445 - January DOM #3 (Applications)
- #446 - January DOM #4 (Games Disk #1)
- #447 - January DOM #5 (Games Disk #2 and Demos)

This month's selection included a number of good programs. The two utilities disks and the two games disks sold the best this month.

This month, all disks are \$3.00 each in observance of MAST's birthday. The four disks of volume 4 for ST News are also available for \$2.00 each. And a newly updated MAST DOC disk set will also be available for \$2.00 for 2 disks.

This month, I am going to change the format a bit and spotlight some of the new special disks coming this month.

**LGS Utilities, DC Utilities and Quick Utilities** - This month, I am starting something new with the utilities. Currently, three groups of people are generating a good number of utilities and updating them regularly. These three are Little Green Software (Arcshell, Deskmanager, Pinhead, Little Green File Selector), Double Click Software (DC Format, DC Showit, DC Stuffer) and Branch Forever Software (Quick ST, Quick Label, Quick View). Lately, each month, some of these are updated and added to the utilities disk. But the utilities disks then become an update disk or best of disk each month. If an update occurs with Arcshell or Quick ST, it is automatically on the disk. Newer utilities are never seen because of this. This month, I already have an update for LG File Selector and Desk Manager and two new utilities from Branch Forever software with a task squisher program and a disk protect program. These disks should be quite popular and will be a good start of new members as well.

**Archive Utilities** - This disk will include the latest ARC, LHARC, and ZOO utilities as well as the best of unarchiving utilities as well. This disk is being created for the same reason as the utilities disks. In the last two months, we have had two updates of ARC and LHARC. Another new version of LHARC is on this month's disk as well. These are automatic inclusions. Also a number of very good archiving utilities exist as well. At least three new utilities arrived this month and two more were updated. This disk as well as the other new utility disks should add more variety to the utilities.

**MicroRTX** - This is everything that you need to write your own multitasking utilities. Included is all the documentation and source code and programs that you will need. This is a shareware package and if you need more information or support, a shareware fee is necessary. Also included are some RTX examples culled from past MAST DOMs by Chuck Purcell. Please note that this is not a multitasking operating system, but a tool to get multitasking utilities. A nice addition to a programmers library.

**Gemini** - This is a Neodesk-like GEM desktop replacement from Germany. But it will only run under TOS 1.2 (Mega ROMs) and TOS 1.4 (Rainbow TOS). The feature list is quite long for this new desktop. Even though, the documentation is in German, the menus and icons are all English. If you wanted a Neodesk-like desktop, check this new program out. This will be demoed at the meeting.

**STATUS Disk Magazine** - This is a new color ST magazine disk. This is a sample first issue from October. This issue includes news, reviews, tutorials and public domain/shareware software. For a first try, they have done an excellent job. They also have a special user group deal as well which I am also looking into. This will be demoed at the meeting. Please let me know if you are interested in future issues so that I can follow up.

**Picture Conversion Disk** - Over the last month, someone has taken the time to go through all of the picture conversion programs and pick out best selection of converter to convert the most types of picture files. This selection also includes a new version of TINYVIEW and TINYSTUFF. If you are into pictures, this disk is for you.

That's the beginning of this month's selection. This is just the start of good selection of software for this month. So stop by the MAST meeting for a complete listing of disks and files.

If you can't make the meeting and would still like to get ahold of the DOM or would like to get ahold of the DOC disk, my new address is

5900 65th Avenue North #204  
Brooklyn Park, MN 55429

That's it for February. Don't forget the special DOM prices that are the lowest of the year. It's

time to pull out the DOC disk. I hope to see you all at MAST's fourth birthday celebration.

## HOW ABOUT AN 8-BIT FRACTALS SIG? by Carl Miller

For the past several years I have been enthralled by the displays of a simple little program from Antic called HOPPER. It is a Graphics Mode 8 point-plotting program that creates fractal dust (as mandelbrot would call it). I think it would be nice for SPACE to have a HOPPER Special Interest Group, whose members could do some of the following projects:

- \* Investigate interesting plotting parameters
- \* Work on and share HOPPER modifications
- \* Build disks full of HOPPER screens for the club library, each with a text file of parameters
- \* Publish HOPPER parameters in this newsletter for all members to use

If you can dig up a copy of the June 1987 issue (I think; or maybe later) of Antic, you'll see how simple the program is and how it works. But you won't find the full complexity of the plotting loop for a very, very long time!

(Enclosed with this article is a disk of HOPPER plots, whose parameters (CY, MX, and CX) are unknown. When I made them a couple of years ago, I wrote down the parameters; but now I can't find them. They are only a glimpse of what HOPPER can do.)

I've created a few variations of HOPPER that make it more interesting and an even more valuable program. I'd be happy to share some of these with other SPACE members who already have HOPPER. Because the program was published in a magazine, it is copyrighted software. So the program itself can not be printed, copied, or otherwise duplicated without permission from the publisher or the author. I think we'll have to stick to sharing small modifications to the program or to publishing only parameter values that others who have HOPPER.

If you have HOPPER, try the following values when you run the program and select C to create a plot:

Left	Right	Top	CY	MX	CX
-1	1	-6	.22	1.04	-.14
-1	1	-6	.49	-.66	.03
-10	10	-6	.42	-1.48	.09
-10	10	-6	.42	-1.48	.09
-.5	.2	.1	-.2	.2	.2

Write to me for a couple of interesting modifications to HOPPER. And offer your own parameter values to our editor, to print in future issues of the newsletter.

Carl C. Miller  
1444 W. Willow St.  
Chippewa Falls, WI 54729

## OF COURSE I OWN AN ATARI!

### Larry Serflaten

#### ATARI Enthusiast

In 1982 I bought an ATARI 800 from a US Military Store in Geissen, West Germany. I was enlisted in the Armed Services and, having my food, shelter, and medical expenses provided for me, I was accumulating a little extra cash! Most of the other soldiers were investing their money in expensive electronic products such as VCRs, rack mounted stereo equipment, and lots of other gear that seemed to be about 15% to 20% lower in Germany than in stores 'back home'. When I was shopping for a computer, there were only two other people in my group (350 in all) that had any experience with them. One owned a TRS 80 and the other an ATARI. I looked at them both before buying.

When I got to actually buying one, my selection was narrowed to one of two choices- ATARI 800, or the VIC 20 from Commodore. I made my selection and later learned the very next month, the price dropped from \$389.00 to \$299.00! I was soon investing in various books and equipment to make mine a slightly more sophisticated ATARI system.

I soon learned what I needed, to make and store programs. In no time at all I was drawing pictures in the different graphic modes and typing in programs found in monthly publications.

I found ways of keeping all sorts of records and developed a few games, but my main purpose for buying this elaborate typewriter was to write SCI FI stories. I soon learned that the software governs the use of the machine no matter how desperate the desire! With my BASIC cartridge and 410 program recorder, I wasn't able to fully realize my dreams. It wasn't until two and a half years later that I finally bought what I thought was a good disk drive.

In Colorado I met with an active member of the local ATARI club, (P3ACE - Pikes Peak P???? ACE) who showed me the many advantages of the disk drive and modem set-up. I guess too much time had elapsed from when I bought it until I could actually use it for writing stories that, during the interim I had left the desire somewhere behind. I now use my computer for games and communications. I've even wrote a few good games in which the computer is a player - attesting to the potential power of this system as a decision making mini-brain.

Every piece I bought for my system is still working. That, I will credit to the GOOD workmanship of the people at ATARI. A computer is not like a pocket radio that loses its novelty when the batteries run out. I still find or hear about software doing amazing things with the ATARI. Of course for the seasoned user - my level threshold of amazing can be thought of as just over amusing - we have gotten just about to the end of exploitability for the 8-bit hardware.

Pretty soon, with the advent of FAX machines all

over the country, someone somewhere will combine FAX, digital data transfers, and answering machines into one package to create a home message system. By the time that happens, supercomputing power will be contained in a box about the size of my ATARI, at a price that won't risk missing the mortgage payments. At that time I'll be moving on with whomever can supply what I am looking for, until then, ATARI suits me just fine.

## Batch Files

### by Jim Johnson

I have a couple things to chat about in this month's column. First, there 'appears' to be a bug in SpartaDOS X. I am waiting for word from ICD to confirm or deny this. The problem lies with trying to change subdirectories from inside programs that allow this. Unless you have a subdirectory within your current directory, it seems SDX will return a "device not found" error when you try to climb the directory structure towards the main directory. The work around is quite simple. Create a dummy subdirectory under the one where your application starts.

Many XF551 owners believe they have no way to format the back side of diskettes to create "flippies" for use with DOS 2.x or on non double sided drives. For our main topic this month, I would like to point out that there is a way to create "flippies" using a XF551 disk drive for around two dollars, that does not require making any modifications to the disk drive, and does not void the drive's warranty.

It takes about five minutes to create two XF551 formattable "flippies". In addition to the standard "disk notcher", you will need two diskettes, a soft lead pencil, and a standard hand held one quarter inch single hole paper punch.

Grip a diskette lightly and using the center ring, slowly turn the disk inside its jacket until the small timing hole is centered in the larger hole in the disk jacket. Repeat the process on the other disk.

Place the two diskettes face to face and top to top, making sure the disk jackets are aligned with each other. Take the soft lead pencil and gently mark the jacket of the bottom disk through the timing hole of the upper disk. Turn the pair of disks over and mark the jacket of the other disk.

Place the two diskettes back to back and top to top, again making sure the jackets are aligned with each other. Repeat the jacket marking from above, this time making your mark on the jacket backs.

You must now punch another timing hole in the disk jacket where you made your marks opposite the original timing hole. However, there can be only "one" timing hole in the disk itself. Either of the following methods of making the second timing hole in just the jacket will work.

The first method is to gently raise the edge of the jacket away from the disk near the center hole. Taking care not to scratch the disk, insert the paper punch through the center hole and punch a new hole in just the jacket, centered on the mark you just made. Turn the diskette over and repeat the process on the other side.

Alternatively, turn the disk in the jacket so the timing hole is now centered between the marks you just made on either side of the jacket. You will have to gently lift the edge of the jacket near the center hole to verify when the timing hole in the disk is properly positioned. Now slide the paper punch over the marks on both sides of the jacket and make a new hole. The increased size of the timing hole in the disk will not prevent proper formatting of the diskette.

With either method, you will have to slightly bend the diskette to insert the paper punch through the center hole. Bending the diskette only slightly will not damage it.

Now use your write protect notcher as usual, and you will be able to write a single sided format to each side of the diskette in your XF551 drive just as you would using a 1050 or 810 drive.

Sometimes a XF551 floppy may fail to format initially. After all the bending and manual moving of the disk inside the jacket, the disk may not spin properly in its jacket for a revolution or two. Unless you physically damaged the diskette, either pre-spinning the diskette by asking for a disk directory, or making a second attempt at formatting the disk will set everything to right.

As a final word, by using a DOS that can handle double sided drives, such as SpartaDOS, MYDOS, or DOS XE there is seldom any reason for creating flippies except when sending disks to fellow Atarians who do not have a double sided drive.

## Mini MIDI Lessons

### by Morris G. Miller

#### part 3 of a series

## Glossary (continued from last issue)

**MIDI OUT** - The MIDI port the instrument "talks" on. All MIDI data sent by the instrument will be on this port, including performance (as from a keyboard) and parameters (as when sending voice definitions). Data received on MIDI IN will not be repeated on the MIDI OUT.

**MIDI THRU** - The MIDI port which repeats everything received on the MIDI IN port, down to the next instrument in the MIDI system. Data sent by the instrument will not be sent on the MIDI THRU port. Not all instruments have a MIDI THRU port.

**Mixer** - see Audio mixer.

**Modulation (envelope)** - see Envelope.

**Modulation wheel** - A keyboard control to vary at some predetermined rate the amplitude (volume) or frequency (pitch) of the note(s) played, or of one or more operators of the note composition giving a tremulous effect of vibrato.

**Monophonic** - All the sound coming out for only one ear at a time.

**Neeeeeet** - see MIDI.

**Note (duration)** - Each note, and rest, has a shape (shade and stem) to indicate the time duration given to the note relative to the time of the measure indicated in the time signature. In MIDI, 96 clock 'ticks' is the duration of one quarter-note, therefore an eight-note has 48 MIDI clocks and a sixteenth-note has 24, etc. The rate in which these occur can be adjusted by the tempo set to the song.

**Note (musical)** - A musical note is unique by its frequency and relation to the root of a musical scale. For every position on a staff (lines and spaces) there is only one note, and it has a given frequency. That note relates directly to one key on the keyboard. See also, Scale.

**Note (on/off)** - The MIDI instrument will send a MIDI code when a key is pressed (note on) and when the key is released (note off). Associated with this code may also be code information on how quickly (velocity) the note is pressed or released. Not all keyboards send velocity information, or of both types.

**Octave** - An interval of 8 diatonic degrees; a harmonic interval. The musical scale is divided into 12 semitones (half steps), beginning at the root note indicated by the key signature. These notes correspond directly to a position on the keyboard and the 12 notes (black and white keys) in sequence. The relative position, frequency, or pitch of a note and the corresponding note 12 tones higher is one octave. Your keyboard may span from 3 to 8 octaves.

**Omni** - MIDI codes are "addressed" so that a voice may receive only the codes intended for it. A voice or control may also be set to omni (all around) to receive any MIDI code without regard to the MIDI channel address. This may be useful when all voices are to respond equally to the modulation wheel or foot pedal.

**Operator (synthesis)** - Synthesizers combine 2 to 8 separate tone generators, each having a defined shape, amplitude, attack rise, decay, etc. Each such tone is called an operator of the voice composition. The number of such tones and the manner in which they are combined determines how faithfully a given sound may be created.

**Orchestra** - see Neeeeeet.

**Pan** - Stereo balance controls. In some machines the pan control simply switches from stereo to monophonic. In others, one or more sounds may be made to pan from left to right

during play, sounding, for example, a motorcycle whizzing down the street - or other sounds more subtle.

**Patch (MIDI)** - The selection of voices and performance parameters for song play. Some instruments allow the patch to be recorded with the song and sent by MIDI code as performance begins.

**Pawn shop** - dealer in musical instruments.

**Pedal (mute, soft)** - An accessory input to the keyboard for additional performance control. Often used in the same manner as the pedal controls on a piano, but voices may be created to respond to the pedal in any of the voice parameters allowed by the synthesizer.

**Pedal (sustain)** - An accessory input to the keyboard for additional performance control. This device is a switch, and used only in voice parameters for on/off control, such as sustain (reduced note decay).

**Performance (musical)** - The playing of a song, but often much more than just that - all of the MIDI controls placed on the song, including voice selections, section repeats, tempo adjustments, etc.

**Performance voices** - Many synthesizers allow individual voices to be combined into performance buffers. For example, six trumpets may be combined, each very slightly offset in various ways (not all sounding exactly the same), and played as one instrument voice. Call it a "chorus of brass". Call it a performance voice.

**Pitch (note)** - The frequency of the note or its position in the musical scale. See also Note (musical).

**Pitch bend** - A control on some keyboards which will shift the pitch (frequency) of all notes played, up or down. As the pitch bend wheel is operated, MIDI codes are sent which may be recorded, edited and replayed with the performance. Not all keyboards support pitch bend.

**Portamento** - A glide from note to note, as with a trombone or violin. Accomplished on the keyboard with the pitch bend wheel or foot pedal. The voice of the synthesizer must be created with operators which respond to the desired control.

**Punch-in** - A song recorded in real time may contain mistakes in the performance. Punch-in allows the performer to listen to the music on play back, play with the music, and then, at the right time, the sequencer will replace predefined measures of the recording with what the performer is now playing. Not all sequencers allow punch-in.

**Range (keyboard)** - See Octave.

**Real time** - At the time of playing, at performance tempo. All sequencers allow

recording in real time. Some allow entry by punch-in and some by step entry, or both. (See also punch-in and Step entry).

**Recorder (MIDI)** - The MIDI sequencer is, typically, organized like a tape recorder. It has tracks for recording segments of the song, tracks for editing, copying, etc. It will have a play button, rewind, position counter, and other "features" of a tape recorder. See also sequencer.

**Recorder (sound)** - A common audio recorder, useful for playing the MIDI performance while singing. With an audio mixer, and a little practice at dubbing, great things can be done. Not all recorders are equal. Most recorders are 2-channel, 4-track; which means only two channels of music can play at the same time (and must!) Some recorders have 4 to 8 channels, with or without SMPTE control. With these recorders an entire orchestra may perform.

**Register (musical scale)** - Your keyboard can span a number of octaves. The note 'C' in the middle of your keyboard is the first note of the third register. It and all the notes up to the next 'C' (exclusive) are notes of register three. Middle-C is then called C3. The octave above is register 4 and the octave below register 2. Your keyboard might span from G-2 (minus 2) up to G8. Probably not.

**Release velocity (key)** - The rate, or how quickly, the key is released. Sometimes used to control portamento or glissando of the tone when played. Not many keyboards send release velocity. Not all synthesizers respond to that information.

**Rhubarb** - a red, woody weed used to make pies only one semitone better than mud pies.

**Rhythm machine** - Like drum machines, a special sequencer which may be loaded with patterns to play drum sounds and rhythms, in the same manner as rhythm sounds built into many of the low-end keyboards, except that you define the patterns (unfortunately the drum and rhythm patterns of these keyboards are not generally available under MIDI control.) MIDI Performance of patterns and rhythms may be changed during play. The pattern played may be chord sequences as well as other sounds. See also Drum machines.

**Sampler** - A type of sound generator which stores an actual sample of the voice, taken with a microphone. The digitized sound, when played, is reconstructed to the frequency of the desired note using the original sound parameters as closely as it can. See also, Sound generation.

**Scale (musical)** - The contemporary scale of today is the division of one octave into the 12 harmonically related intervals called half tones (half steps) and the formation of harmonic intervals (notes played simultaneously) we find pleasing to the ear. Music theory has defined certain of these intervals acceptable to the



ear in melodic interval (played one after the other). See also, Octave, Scale.

**Score** - The printed, graphical, notation of the music performance. The score gives information on the scale in root, all the individual notes to be sounded, tempo and timing of all notes, composer's comments on force and mood of the performance, and just about anything else necessary to reproduce the sounds of the performance.

**Scorer** - A module or program to print the score of a musical performance held by the sequence editor in MIDI form.

**Semitone** - The smallest interval of the musical, or chromatic, scale. Also called the half-step. The major and minor scales are actually composed of seven of these notes in combinations of steps and half-steps (dual semitones and semitones). All of the semitones are available to the composer by use of markings in sharps and flats symbols to raise or lower by one halftones the normally occurring note of the root scale. See also, Scale.

**SEMPTE** - An acronym for the Society of Motion Picture and Television Engineers. A timing standard, similar to MIDI, based on the framing of television and motion picture video information.

**Sequencer** - The computer program for recording, editing and replay of a musical performance. See also, Editor.

**Serial** - Data sent bit-by-bit, one after the other.

**Sound generation** - The production of (musical) sounds by any of a number of digital electronic processes. Sometimes simply called "sound synthesis", as in "synthesizer". There are a number of ways to produce musical sounds today, other than sound synthesis. The most common is digital sound sampling (see Samplers). Others manufacturers may use pulse modulation techniques, harmonic mixing and filtering techniques, or any of a number of other procedures, sometimes in blended combinations.

**Staff** - The five lines and enclosed spaces of common musical notation. When given a tonal range by the clef symbol, each note position then has definite tone name and frequency.

**Step entry** - A procedure where notes may be entered by the keyboard one note (or combination of notes) at a time, rather than by continuous playing. Not all sequencers permit step entry. See also, Real time entry.

**Stereo** - All the sound coming out for both ears at the same time.

**Sustain** - To cause a note to continue sounding beyond note off, or to increase the time in which it decays. Normally accomplished with a foot switch during performance, but may be edited in the sequence editor, as well. This

effect must be programmed into the voice when created in the synthesizer.

**Synthesizer** - A type of sound generator which combines a number of operators having specified parameters to produce a complex audible waveform. The word "synthesis" comes from the fact that there is one master oscillator and all other tone frequencies are generated as signals harmonically related to that one master. See also, Operator.

**System codes** - See Exclusive codes.

**Tape sync** - The signals produced by some MIDI control "boxes" to record the MIDI clock on a tape recorder with the performance. Once recorded, the recorded clock becomes the "conductor" for other performances, thus allowing multiple recordings which all play together properly. Not all sequencers support SEMPTE or tape sync.

**Tempo** - The speed of a performance. The number of quarter notes per second, as in a tempo of 110. See also, Note(duration).

**Time signature** - A two-part notation designating the number of (numerator) time units (denominator) per musical measure (between bars.) A notation of 3/4 time says that there will be three quarter notes per measure.

**Tonal position** - On a staff marked with a clef, the name and tone frequency of a note. Also sometimes in reference to the relative position of a note within the associated scale. See also Octave, Note (musical)

**Touch pressure** - see after touch pressure

**Touch sensitivity** - The parameters, related to pressing a key on a keyboard, which are measured and sent by MIDI for recording and control. See also, Attack velocity, After touch, Release velocity. See also, Lesson #5.

**Track** - A buffer of the sequencer for recording, editing and performance of a song segment. See also, Recorder(MIDI).

**Transpose** - To move notes of a song (segment) up or down in frequency by a specified interval of semitones.

**Tremolo** - A tremulous effect put upon a voice performance by modulation of the amplitude, frequency, or of one or more of the operators of the voice composition. Often used in reference to the amplitude modulation, but musically this is not specific. With MIDI, most often accomplished with the modulation wheel control. See also, Modulation (wheel), Vibrato.

**Vibrato** - A tremulous effect put upon a voice performance by modulation of the amplitude, frequency, or of one or more of the operators of the voice composition. Most often used in reference to the frequency, or tone modulation. With MIDI, most often accomplished with after touch control. See also, After Touch, Tremolo.

**Voice** - The defined sound produced from a synthesizer or sampler, commonly supposed to resemble that of a conventional musical instrument or sounds which follow rules found in nature. The voice is not necessarily musical. Since the word instrument is used to refer to the devices in MIDI, the word voice is used to refer to the sound the devices produce.

**Yard sale** - outlet for pawn shop rejects.

## ST News Compiled by Jim Schulz

This month, we have two offers for you. First up, UIS III is now out and available. If you are a registered owner, you probably received a card telling you of the update. But for those who didn't, here is how to update UIS II to UIS III. Send \$7.00 (\$5.00 for the update and \$2.00 for postage) with your original disk to Applications and Design Software/120 NW "E" Street/Grants Pass, OR 97526. For your \$7.00, you will get the latest copy of UIS III with a smaller call file selector desk accessory and a 36 page manual. Our other offer this month is a special on ST World. For \$12.00, you get a one year subscription which is regularly \$18.00. To get this low price, all you have to do is mention ST Report while ordering. The address is ST World Magazine/ 2463 Lantona Court NE/Salem, OR 97303. We will have sample issues at the next MAST meeting. Next time, we will give you information on the new Turbo ST V1.8 which is currently in beta test and just about ready for release.



DISCLAIMER

Published by the St. Paul Atari Computer Enthusiasts (SPACE), and Minnesota Atari ST (MAST) group, an independent organization with no business affiliation with Atari Corporation. Permission is granted to any similar organization with which SPACE/MAST exchanges newsletters to reprint material from this newsletter. We do, however, ask that credit be given to the authors and to SPACE/MAST. Opinions expressed are those of the authors and do not necessarily reflect the views of the SPACE/MAST, club officers, club members or Atari Corporation.

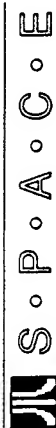
SPACE / MAST BULLETIN BOARDS

SPACE/MAST East (XE) - BBS Phone: (612)-784-9667

Sysop: Amos Jackson & Carl Towberman.

SPACE/MAST West (ST) - BBS Phone: (612)-472-6582

Sysop: Tom Cook



President  
Greg Howell  
Vice President  
Nathan Block  
Secretary  
Larry Vanden Plas  
Disk Librarian  
Joe Danko  
Paper Librarian  
Jim Scheib  
Membership Coordinator  
Bob Siede  
SPACE/MAST Treasurer  
Allan Frink  
636-2415  
777-9500  
721-4185  
489-3982  
482-7911



President  
Jim Schulz  
Vice President  
Dave Paschall-Zimbel  
Secretary  
Steve Pauley  
Disk Librarian  
Jim Schulz  
Paper Librarian  
Neil Palosaari  
Membership Chair  
Allan Frink  
SPACE/MAST Newsletter Editor  
Dave Paschall-Zimbel  
533-4193  
823-1276  
560-2917  
533-4193  
646-1272  
482-7911  
823-1276

NEWSLETTER ADVERTISING RATES:

1/2 page - 5 1/8" vertically x 8" horizontally - \$ 15/mo., \$140/yr.  
Full page - 10 1/4" vertically X 8" horizontally - \$25/mo., \$240/yr.  
Club members classified - 50¢ per 40 characters, \$2.50 minimum per ad.  
Send to : SPACE/MAST, P.O. Box 12016, New Brighton, MN 55112

ST. PAUL ATARI COMPUTER ENTHUSIASTS  
& MINNESOTA ATARI ST

SPACE and MAST are independent user groups of owners of ATARI Home Computers. It has been organized by local owners of ATARI computers for the purpose of mutual self assistance and sharing of information. It is open to all interested computer enthusiasts.

Benefits of memberships in the groups include monthly newsletter mailed to your home, BBS access, software demonstrations, group purchases, public domain disk(s) of the month software at low prices, reference book library, educational software library (8-bit only) with over 20 titles, personal contacts/learning, greater information and awareness on the world of ATARI, software at discounted prices from dealers, question and answer session, etc. Come to a meeting to find out more.

**SPACE - 8Bit Group** The SPACE meetings are devoted primarily to the 8-bit ATARI computers such as the 400, 800, 600XL, 800XL, 65XE and 130XE. There is other ATARI related news and some 16-bit news at the SPACE meetings, as well. The SPACE group meets on the second Friday of each month at the Falcon Heights Community Center, 2077 West Larpenteur Avenue, at 7:30pm. Doors open at about 7:10pm.

**MAST - ST Group** The MAST meetings are devoted primarily towards the ATARI 520ST, 1040ST & MEGA computers. There will be ATARI related news items covered, but not 8-bit news. The MAST group meets on the third Friday of each month at the Falcon Heights Community Center, 2077 West Larpenteur Avenue, at 7:30pm. Doors open at about 7:10pm.

**MAST+ - Programming Language User Sig** MAST also has a programmer's group meeting. This group has a more technical discussion regarding programming the ST computers in a variety of languages. The group meets on the Monday following the MAST meeting at the First Minnesota bank on Lexington Avenue near Larpenteur Avenue. Meeting time is 7:30, with doors opening at about 7:20pm. The entrance is in the back of the building and leads to a stairway to the second floor.

For more information, or to confirm a meeting time and location, call Greg Howell (SPACE) or Jim Schulz (MAST) 533-4193

SPACE / MAST Membership Application

Name \_\_\_\_\_ Date \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_ Equipment/System Used \_\_\_\_\_  
Area of Interest: \_\_\_\_\_

Check one: SPACE \_\_\_\_\_ MAST \_\_\_\_\_  
Renewal? \_\_\_\_\_ Address Change? \_\_\_\_\_ Membership Card Given? \_\_\_\_\_  
Dues: \$15.00 per year - Please enclose with Application.  
Mail to: SPACE/MAST, P.O. Box 12016, New Brighton, MN 55112

# SPACE / MAST Newsletter

## February 1990

**SPACE** meeting:

*9 February 1990*

**MAST** meeting:

*16 February 1990 -- Birthday Party celebration!*

SPACE / MAST regular meetings are at the Falcon Heights Community Center, 2077 Larparentur Avenue West (meetings start at 7:30 pm)

**MAST+ Programmers Meeting:**

*Tuesday, 20 February 1990*

At First Minnesota Bank Building - second floor, Lexington and Larparentur.  
in back of building, 7:30 pm

SPACE / MAST NEWSLETTER

S•P•A•C•E / M•A•S•T

P.O. BOX 12016

New Brighton, MN 55112